

REMARKS

The examiner has noted that certain listings of prior art in the specification is not a proper information disclosure statement. In reply, the applicant is enclosing said references in an information disclosure statement and submitting same.

The examiner has noted that the claims as filed contained the feature of "nodes" which were not referred to in the specification. It is pointed out that the term "nodes" in the claims is a typographical error and should read "lobes". The feature of "lobes" is disclosed in the specification. The claims have been amended to correct this typographical error.

The examiner has noted figure 24 and 30 show the reference numbers 8 and 360, respectively, but that these references were not referred to in the written disclosure. In reply, the applicant has amended figures 24 and 30 to remove reference numbers 8 and 360 respectively. Amended drawing sheets are enclosed.

The examiner has noted that the title contains a typo. In reply, the applicant has amended the title.

Claims Objection:

The examiner has pointed out some informalities in claims 1, 2-5 and 7-9. In reply, the applicant has amended claims 1 to 5 to correct the informalities cited by the examiner. Claims 7 to 9 have been withdrawn from further consideration.

Claims Rejection:

The examiner has rejected claims 1, 3/1, 4/1 and 5/1 as being anticipated by Groeneveld et al. (Pub. Number WO 86/06786 A1). The applicant respectfully transgresses the examiner's rejections. The examiner states that the Groeneveld reference discloses a toroidal cylinder (3), two impellers (4, 5) with radial vanes rotatably mounted in said cylinder (3) with said impellers (4, 5) cooperating with said cylinder to define working chambers between adjacent vanes (8-11 and 12-15), each impeller including to one side thereof at least one rotary valve element (27, 28)

which rotates with the impeller (4, 5) and selectively opens and closes passages (25, 29, 30, 26) in said cylinder housing to said working chambers for inletting (25) and exhausting (26) a working media; said rotary valve elements (27, 28) cooperating with said housing such that the position of said valve element defines media flow through said engine or pump (See Figures 1-6, 8-10, Abstract). In fact, it is clear from reading the Groeneveld reference that the features of a rotary valve element to the side of the impeller are not shown in the reference. The features shown in figure 4, namely features 27 and 28 form part of a rigid housing and do not form a rotary valve element which rotates. These are not separate features from the impellers 4 and 5 - indeed, impellers 4 and 5 are NOT found in figure 4 since figure 4 is an alternate embodiment and not a part (or portion) of the overall device. The examiner has mistakenly taken figure 4 to be part of the same device shown in figure 1; however, figure 4 shows an entirely different embodiment and not part of the device shown in figure 1. Indeed, turning to page 7, line 1, the description of figure 4 in German reads "einen Längsschnitt durch eine Hälfte einer anderen Ausführungsform einer Rotationskolbenmaschine", which translates into English as (approximately) "a cross sectional view of an alternate embodiment of the rotary piston machine". Figure 4 does not refer to a valve mechanism for use with the device shown in figure 1, but rather an entirely different device. Features 27 and 28 are clearly part of a rigid housing and do not rotate or move. Indeed, lines 21 and 22 of page 9 of the reference reads: "einander entgegengesetzten Seiten 27, 28 des Gehäuses 24 befinden" which translates into English as, essentially, "opposite sides 27, 28 of housing 24". Figure 4 does not disclose a rotary valve element to one side of the impellers. Therefore, the Groeneveld reference does not disclose all of the features as claimed in claim 1 of the application and the claim is therefore not anticipated by the Groeneveld reference.

The applicant also wishes to respectfully point out that the examiner has referred to features 25, 29, 30 and 26 of the Groeneveld references as passages, but then later refers to the same numbered features of the Groeneveld reference as "nodes 25, 29, 30 and 26 that cooperate with a valve portion of said housing, said nodes closing ports in said housing to said working chambers as a function of the angular position of said valve elements". It is respectfully submitted that the examiner cannot maintain that the same feature of the same reference can be two entirely different and mutually exclusive features. A passage is a "hollow" area which

permits material to pass there through, while a "node" (a misspelling of lobe) is a solid feature which is used to obstruct. It is respectfully submitted that it is physically impossible for a passage to also be a lobe (node). Therefore, if the Groeneveld reference discloses passages 25, 29, 30 and 26 it cannot also disclose lobes 25, 29, 30 and 26. Furthermore, the reference refers to features 25, 29, 30 and 26 by the German word "Durchlaßöffnungen" which translates into English as "Passage openings" or "ports". Therefore, the Groeneveld reference does not disclose lobes which obstruct openings as recited in claim 4. Therefore, claim 4 is not anticipated by the Groeneveld reference because all of the features of claim 4 are not disclosed in the Groeneveld reference.

Since the Groeneveld reference does not disclose all of the features as claimed in claims 1 through 5, it is respectfully submitted that these claims are not anticipated by the Groeneveld reference. It is further submitted that the claims of the present invention which remain for consideration are not obvious from the references cited.

The references fail to disclose either a rotary valve element to the side of the impeller or the rotary valve element having lobes to selectively open and close ports in the housing. The rotary valve element of the present invention, being positioned to the side of the impeller, permits the opening and closing of ports leading to the cylinder by the valve element and not by the vanes. All the references cited by the examiner, including the Groeneveld reference, discloses the opening and closing of the ports via the vanes in the cylinder. The lobes on the rotary valve element permit the ports in the toroidal cylinder to remain open for longer periods of time, allowing for more time for the working media to move through the working chambers between the vanes. All previous art show the valving (i.e. opening and closing of ports) being done inside the cylinder by the vanes. This requires the vanes to be relatively thick and the ports to be relatively small. The result is a less efficient design. By having the valving function performed by a rotating valve element located to the side of the impeller, the vanes of the engine/pump can be made small and the ports can remain open for a longer period of time. The feature of a rotating valve element to the side of the impeller is not shown in any of the references cited by the examiner or provided by the applicant. Indeed, all of the references show rotating piston engines/pumps wherein the valving is performed by the vanes themselves. Therefore, it is

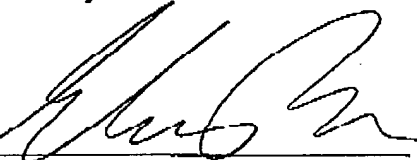
respectfully submitted that claims remaining in the application are not obvious from the cited art.

New claims 10 to 13 have been added to present the feature of the rotating valve element in alternate language. Claim 10 clearly recites that the rotating valve element is positioned outside the cylinder itself, as disclosed in figures 19 to 23 of the disclosure. Again, this feature is not found, nor is it obvious from, any of the cited references; either individually or in combination.

In view of the foregoing amendments and remark, it is submitted that all of the claims remaining in the application are now in condition for allowance and such action is respectfully requested. Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

For the reasons outlined above, withdrawal of the rejections of record and an allowance of this application are respectfully requested.

Respectfully submitted

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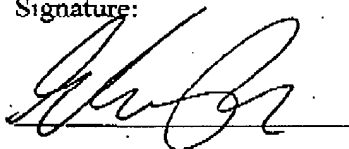
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Signature:

A handwritten signature in black ink, appearing to read 'E. C. Borges', is written over a horizontal line.